

RESPONSE TO OFFICE ACTION
S/N 10/092,795
Page 3 of 9IN THE CLAIMS

- B3*
1. (Currently Amended) A method of plasma etching a layer of dielectric material having a dielectric constant that is greater than 4 comprising the steps of:
exposing said dielectric material layer to a plasma comprising carbon monoxide a reducing gas and a halogen containing gas.
 2. (Original) The method of claim 1 wherein the dielectric material is at least one of HfO₂, ZrO₂, Al₂O₃, BST, PZK, ZrSiO₂, HfSiO₂, and TaO₂
 3. (Original) The method of claim 1 wherein the dielectric material is HfO₂.
 4. (Original) The method of claim 1 wherein the halogen containing gas comprises a chlorine containing gas.
 5. (Cancelled)
 6. (Currently Amended) The method of claim 1 wherein halogen gas comprises chlorine and the reducing gas comprises carbon monoxide.
 7. (Original) The method of claim 4 wherein said chlorine containing gas is Cl₂.
 8. (Original) The method of claim 6 wherein said exposing step further comprises the step of:
supplying 20 to 300 sccm of Cl₂ and 2 to 200 sccm of CO.
 9. (Original) The method of claim 1 further comprising the step of:
maintaining a gas pressure of between 2-100 mTorr.

RESPONSE TO OFFICE ACTION
S/N 10/092,795
Page 4 of 9

10. (Original) The method of claim 6 further comprising the step of:
maintaining a gas pressure of 4 mTorr.
11. (Original) The method of claim 1 further comprising the step of:
applying a bias power to a cathode electrode of 5 to 100 W.
12. (Original) The method of claim 6 further comprising the step of:
applying a bias power to a cathode electrode of 20 W.
13. (Original) The method of claim 1 further comprising the step of:
applying an inductive source power to an inductively coupled antenna of 200 to
2500 W.
14. (Original) The method of claim 6 further comprising the step of:
applying an inductive source power to an inductively coupled antenna of 1100 W.
15. (Currently Amended) The method of claim 3 [[1]] further comprising the step of:
maintaining a workpiece containing said hafnium-oxide dielectric layer at a
temperature between 100 to 500 degrees Celsius, wherein said dielectric layer is HfO₂.
16. (Currently Amended) The method of claim 3 [[6]] further comprising the step of:
maintaining a workpiece containing said hafnium-oxide dielectric layer at a
temperature of 350 degrees Celsius, wherein said dielectric layer is HfO₂.
17. (Previously Presented) A method for plasma etching a workpiece having a layer
of hafnium-oxide comprising the steps of:
supplying between 20 to 300 sccm of chlorine and between 2 to 200 sccm of
carbon monoxide;
maintaining a gas pressure of between 2-100 mTorr;
applying a bias power to a cathode electrode of between 5 to 100 W;

RESPONSE TO OFFICE ACTION
S/N 10/092,795
Page 5 of 9

applying power to an inductively coupled antenna of between 200 to 2500 W to produce a plasma containing said chlorine gas and said carbon monoxide gas; maintaining said workpiece at a temperature between 100 and 500 degrees Celsius.

18-34. (Cancelled)